# Ames Procedural Requirements

**APR 8715.1**

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COMPLIANCE IS MANDATORY

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**Ames Health and Safety Manual**

**Chapter 4 - Mishap and Close Call Reporting and Investigating /Contingency Plan**

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## Change History

## APR 8715.1, Chapter 4 Ames Procedural Requirements for Mishap and Close Call Reporting, Investigating/Contingency Plan

| Status Baseline/Revisions/ Cancellations | Date | Description |
|---|---|---|
| 1 | 7/24/11 | 1. Update to include Mishap Contingency plan requirements per NPR 8621.1B, Mishap and Close Call Reporting, Investigation, and Recordkeeping.<br>2. Format update per APR 1440.1, Records Management |
| 2 | 08/08/16 | Changed Mishap database from IRIS to NMIS (NASA Mishap Information System) https://nmis.sma.nasa.gov<br>Changed format and made changes per document review dated 6/24/14 and requested legal modification 7/7/14. |

# Preface

## P.1 Purpose

a. In accordance with NPR 8621.1B, "NASA Procedural Requirements for Mishap and Close Call Reporting, Investigating, and Record Keeping," this APR establishes the Ames Research Center (ARC) policy and procedural requirements to report, investigate, and document mishaps, close calls, and previously unidentified serious workplace hazards to prevent recurrence of similar accidents. This APR does not apply to investigations concerning civil, criminal, or administrative culpability or legal liability. Furthermore, the safety investigative process outlined in this APR shall not be used to direct or justify disciplinary action for mishaps or close calls.

b. This APR provides requirements that specify how to respond to any mishap or close call from discovery through corrective action and closure. It contains requirements for classifying mishaps, establishing investigation authorities, and performing investigations. It formalizes notification, and reporting obligations; describes roles and responsibilities; and specifies the relationship and interaction with other government agencies.

## P.2 Applicability

This chapter is applicable to all Ames employees, to all work conducted under the authority of Ames, and to all equipment and property managed by Ames. For Ames contractors, it is applicable through contract clauses in conformance with NASA procurement Regulation (Part 1, Subpart 52 and Part 14, Subpart 6). Non-Ames and non-contractor personnel will follow the provisions of this chapter while at Ames facilities.

## P.3 Authority

NPR 1800.1, NASA Occupational Health Program Procedures

## P.4 Applicable Documents and Forms

NPR 3792.1B, Plan for a Drug-Free Workplace

NPR 7120.6, Lessons Learned Process

NPR 8621.1, Mishap and Close Call Reporting, Investigating, and Recordkeeping

APR 1601.4, Emergency Operations Plan

APD 1440.1, Records Management Program

29 CFR Part 1960, Basic Program Elements for Federal Employee Occupational Safety and Health Programs and Related Matters

NASA Federal Acquisition Regulation (FAR) Supplement (NFS) Part 1807, Acquisition Planning

### P.5 Measurement/Verification

Agency triennial audit and Ames Safety Accountability Program (formerly Ames Annual Voluntary Protection Program (VPP) self-inspections).

### P.6 Cancellation

APR 8715.1, Chapter 4, effective date 9/10/2012.

/S/

Eugene Tu
Center Director

## 4.1. General Information

### 4.1.1 Objectives of Mishap and Close Call Investigations

4.1.1.1 The objective of mishap and close call investigations is to improve safety by identifying what happened, where it happened, when it happened, why it happened, and what should be done to prevent recurrence and reduce the number and severity of mishaps.

### 4.1.2 Mishaps vs. Non-Mishaps and Close Calls

4.1.2.1 Regardless of the final classification or exemption, all unplanned events shall be reported to NASA management as described in this procedure. A NASA Mishap is an unplanned event that results in at least one of the following:

a. Injury to non-NASA personnel, caused by NASA operations.
b. Damage to public or private property (including foreign property), caused by NASA operations or NASA-funded development or research projects.
c. Occupational injury or occupational illness to NASA personnel.
d. NASA mission failure before the scheduled completion of the planned primary mission.
e. Destruction of, or damage to, NASA property.

4.1.2.2 The following are not considered NASA mishaps but still shall be reported.

a. Illness or fatalities that are due to natural causes or are unrelated to the work environment when the disease, not the injury, is the proximate cause of the lost time, such as diabetes and its resultant complications (e.g., loss of vision).

b. Attempted or consummated suicide or intentionally self-inflicted injuries.
c. Injuries or fatalities resulting from altercations, attack, assault (unless incurred in the performance of official duties: for example, criminal investigators), or homicide.
d. Accidents occurring during the transportation of NASA material by commercial carriers, when NASA and/or NASA contractors had no roles or responsibilities for packing, securing, or transporting the items.
e. Accidents involving civil aircraft owned by civil operators and accomplishing contract air missions for NASA, where there is no NASA property damage or civil servant injury.
f. NASA equipment that is located off-site, whether leased, bailed or otherwise loaned to contractors, commercial airlines, other Government agencies, or foreign governments when that entity has assumed the risk of damage or loss.
g. A malfunction or failure of component parts that are normally subject to fair wear and tear and have a fixed useful life that is less than the fixed useful life of the complete system or unit of equipment, provided that all of the following are true:

    1. There was adequate preventative maintenance.
    2. The malfunction or failure was the only damage, and the sole action is to replace or repair that component. (This exception does not apply to a malfunction or failure of a component part that results in damage to another component or the facility or injury to personnel.)

h. A test failure involving damage to equipment or property as a result of testing, provided that all of the following are true:

    1. The test article is not flight hardware.
    2. The testing is part of an authorized research/development/qualification/certification program.
    3. Damage is limited to the test article and test instrumentation.
    4. Risk of damage to the test article and test instrumentation resulting from failure was accepted explicitly (i.e., documented) by program/project management and concurred on by the Center safety office.
    5. The test team performs a test failure analysis and generates a technical report instead of treating it as a mishap and completing a mishap report.

i. A failure resulting in damage to flight hardware during the ground Acceptance Test Procedure (ATP) is not a mishap when all of the following are true:

    1. The failure is a predictable outcome.
    2. Only the flight article is damaged or failed, and testing did not damage the test stand or facility or cause personnel injury.
    3. The test equipment functioned properly.
    4. There were no anomalies in the facility or test procedures that could have contributed to the article failure.

5. The test team performs a test failure analysis that identifies the root cause(s) of the failure and generates a technical report instead of treating it as a mishap and completing a mishap report.

4.1.2.3 When an event is not considered a mishap because the initiating event (proximate cause) is natural phenomenon or weather, the organization incurring the damage shall perform a technical assessment to evaluate design and construction aspects, contingency planning, and emergency response and provide facts, findings, and recommendations to the Center Director through the Center SMA Director (or equivalent office with responsibilities for the Center's facility safety program).

4.1.2.4 When an event is not considered a mishap because the initiating event (proximate cause) is natural phenomenon or weather, the cognizant Center safety office shall enter the event and a description of the damage in NMIS (NASA Mishap Information System).

4.1.2.5 NASA property damage or personnel injuries that are the result of vandalism, riots, civil disorders, or felonious acts such as arson or sabotage are not considered NASA mishaps. These incidents shall be reported and investigated in accordance with procedures under NPD 9800.1B, NASA Office of Inspector General Programs, and NPR 1600.1, NASA Security Program Procedural Requirements.

4.1.2.6 A NASA close call is an event in which there is no or minor injury requiring first aid, or no or minor equipment or property damage (less than $20,000), but which possesses a potential to cause a mishap.

### 4.1.3 Mishap Classification Levels and Investigation Types

1.3.1 The severity of the personnel injury and the direct cost of the mishap or close call (property damage and/or mission failure) shall determine the classification level of the mishap or close call - and the corresponding type of investigation to be conducted as defined in NPR 8621.1, NASA Mishap and Close Call Reporting, Investigation, and Recordkeeping.

### 4.1.4 Roles and Responsibilities

4.1.4.1 Below are listed the roles and responsibilities that ARC personnel shall have in the event of a mishap. The appendixes in this document provide guidance and means of documenting a mishap.

a. Employees shall

1. If witness to, or involved in a NASA mishap or close call, employees shall immediately notify Ames dispatch/emergency response, if required. From an internal NASA Ames phone dial 911, from any other phone dial (650) 604-5555. Notify the Ames Safety Office 650-604-5602 after emergency response (if required) has been initiated.
2. For non-emergency mishap and close call reporting notify both the Ames Safety Office at 650-604-5602 and your supervisor of the circumstance for the mishap or close call. Assist investigation as requested.
3. Complete witness statements prior to leaving the mishap investigation site, to the extent possible.
4. Provide as much information as possible to the investigating authority.

b. Program/Project Managers shall

1. If witness to, or involved in a program or project related mishap or close call, immediately notify Ames dispatch/emergency response, if required. From an internal NASA Ames phone dial 911, from any other phone dial (650) 604-5555. Coordinate with personnel at the Scene and assure that supervisors are notified for injured personnel. Notify the Ames Safety Office 650-604-5602, the Office of the Chief Engineer and your supervisor (if not already notified) after emergency response (if required) has been initiated. Notification must be acknowledged (verbally and/or email) to meet the intent of this requirement. The organization at the scene first takes the lead on notifications and protecting evidence until told to depart by the incident commander or relieved by an Interim Response Team.
2. Assist investigation as requested. Complete witness statements prior to leaving the mishap investigation site, to the extent possible.
3. Submit a Quick Incident report on the NMIS web site (https://nmis.sma.nasa.gov)within twenty-four (24) hours.
4. Activate Program/Project mishap preparedness plan if applicable or use the Center reporting process.
5. Ensure that any injured person immediately reports to the Ames Health Unit or that emergency response is initiated.
6. Secure the mishap scene as soon as possible and protect it from being disturbed. Manager should work with Protective Services and the IRT if appropriate.
7. Develop and maintain a program/project mishap preparedness and contingency plan per section 4.2.1 of this document.
8. Civil Servants - Per NPR 3792.1B 4.4., Plan for a Drug-Free Workplace Post-Accident or Unsafe Practice Testing - An employee may be subject to testing when, based upon the circumstances of the accident, his/her actions are reasonably suspected of having caused or contributed to an accident that meets the following criteria:

    a. The accident results in a death or personal injury requiring immediate hospitalization.

b. The accident results in damage to Government or private property estimated to exceed of $10,000.

If an employee is suspected of having caused or contributed to an accident meeting either of the above criteria, the appropriate supervisor shall present the facts leading to this suspicion to the Center Director (or designee) for approval. Once approval has been obtained, the Center's Human Resources Office has been informed, and arrangements have been made with the DPC (Drug Program Coordinator) for testing, the supervisor shall prepare a written report detailing the facts and circumstances that warranted the testing.

Contract Personnel – Supervisor must follow drug testing procedures per their contract.

9. Support the mishap investigation board as necessary.
10. Provide funding and support for investigations within program jurisdiction.
11. Determine the direct cost of the mishap or close call.
12. Within fifteen (15) days develop a corrective action plan to address any findings and/or recommendations identified by the investigation. See Corrective Action Plan section for requirements.
13. Provide information for corrective actions, direct cost, lost work days, restricted duty days, lessons learned and objective evidence (of corrective action completion) to the Ames Safety Office.
14. Evaluate mishap reports for Lessons Learned and enter on website (http://llis.nasa.gov).

c. Supervisors shall

1. Upon notification of a mishap or close call, immediately notify your organization director and the Ames Safety Office at 4-5602 of the circumstance of the mishap/close call. Notification must be acknowledged (verbally and/or email) to meet the intent of this requirement. Coordinate with personnel at the scene. The organization at the scene first takes the lead on notifications and protecting evidence until told to depart by the incident commander or relieved by an Interim Response Team.
2. Submit a Quick Incident report on the NMIS web site (https://nmis.sma.nasa.gov) within twenty-four (24) hours.
3. Ensure that any injured person immediately reports to the Ames Health Unit or that emergency response is initiated.
4. Immediately report to the Ames Health Unit when notified of a lost time or restricted duty injury or illness.
5. Secure the mishap scene as soon as possible and protect it from being disturbed. Supervisor will work with Protective Services and the IRT if appropriate.

6. Identify potential witnesses and get statements from them. Supervisor will work with the Incident Response Team when the IRT is deployed. See witness statement form in Appendix F.
7. Immediately initiate drug testing if the mishap results in a fatality or personal injury requiring immediate hospitalization or damage estimated to be in excess of $10,000 to government or private property. See procedures section for information to initiate drug testing.
8. Support the board mishap investigation as necessary.
9. Determine the direct cost of the mishap or close call.
10. Within twenty-four (24) hours investigate mishap unless a Mishap Investigation Team (MIT) is appointed.
11. Within fifteen (15) days, develop a corrective action plan to address any findings and/or recommendations identified by the investigation. See Corrective Action Plan section for requirements.
12. Provide information for corrective actions, direct cost, lost work days, restricted duty days, lessons learned and objective evidence (of corrective action completion) to the Ames Safety Office upon completion.
13. Evaluate mishap reports for Lessons Learned and enter on website (http://llis.nasa.gov).

d. Organization Directors shall

1. Determine if Ames senior management notification of the reported mishap or close call is required.
2. Immediately notify Ames senior management including Center Director, Deputy Center Director, Associate Center Director, Director of Center Operations and Chief of Staff when required. Notification must be acknowledged (verbally and/or email) to meet the intent of this requirement.
3. Ensure that the policies and procedures for reporting, investigating and documenting mishaps and taking corrective action are implemented and that employees are familiar with the roles and responsibilities as documented within this Chapter.
4. Provide support to Ames mishap investigations such as personnel, engineering support, testing, or data analysis.
5. Review mishap reports and corrective action plans for mishaps that occur in your directorate.
6. Ensure corrective action plans for mishaps in your Directorate are implemented in a timely manner.
7. Provide funding and support for mishap investigations that occur in your directorate.
8. Immediately report to the Ames Health Unit when notified of a lost time or restricted duty injury or illness.

e. Center Director shall

1. Develop and maintain a program/project mishap preparedness and contingency plan per NPR 8621.1B, NASA Procedural Requirements for Mishap and Close Call Reporting, Investigating, and Recordkeeping.
2. Implement the mishap reporting, investigating, and recordkeeping requirements for all projects, programs, and activities that fall under their SMA responsibility.
3. Determine all mishap classification levels (or assign a designee) for which the Center has reporting responsibility.
4. Obtain concurrence on this classification level from the HQ SMA for Type A, Type B, and high-visibility mishaps, and high-visibility close calls.
5. Serve as the appointing official for Type A and Type B mishaps occurring at, or managed by the Center and involving offsite Center support contractors, including aircraft operations.
6. Center Director or designee will designate the appointing official and document the designee(s) in the Mishap Preparedness and Contingency Plan for Type C, D mishaps, and close calls.
7. Request concurrence from the HQ Chief Health and Medical Officer (CHMO) on the investigating authority's membership, in mishaps involving injury of a human research subject.
8. Determine the direct cost of the mishap or close call.
9. Personally report, by telephone or e-mail, to the Administrator within twenty-four (24) hours of learning of any NASA Type A, Type B or Type C mishap (only if it involves a lost-time injury or illness), or any non-occupational fatality of a NASA civil service employee or a resident contractor that occurred onsite.
10. Personally report, by telephone or e-mail, to the Administrator when it becomes known that there is any off-the-job fatality or serious injury/illness of a NASA civil service employee or resident contractor.
11. Ensure that local procedures for dealing with the needs of the NASA workforce (civil service employees and contractor employees) when they are experiencing a crisis situation (e.g., serious injury, illness, or fatality of workforce member or family member) are:

    a. Reviewed annually.
    b. Include a process for immediately notifying the next of kin for mishaps and on site non-occupational medical events resulting in fatality or serious injury.
    c. Provide information to the person or family (when the person is unable to receive such information due to the injury or illness) concerning benefits, such as extended sick-leave and disability.

12. Ensure that the NASA civil service employees designated to communicate with the family of an injured, ill, or deceased individual have received training in NASA policy concerning benefits and crisis intervention.
13. Initiate the use of the NASA Family Assistance Fund (NFAF), upon the NASA civil service employee family's agreement or request.

14. Verify that NASA contractors and grantees conduct mishap investigations and provide mishap reports.
15. Provide administrative, logistical, and funding support for the investigating authority appointed at their Center.
16. Provide funding and support for investigations within program jurisdiction or involving program hardware and facilities.
17. Identify security clearance required for responding IRT and MIB members.
18. Center Director shall coordinate release of all information to the press and the public via the Center PAO.
19. Generate official memorandum in support of the mishap investigation and reporting process:

    a. Mishap Investigation Board appointment letter.
    b. Request for corrective action.
    c. Report endorsement letter.
    d. Determine the investigation timeframe and assign a completion date.
    e. Distribute the authorized mishap report.

f. Protective Services shall

1. Control mishap scene and limit access to trained or authorized personnel, safe and secure the mishap scene with appropriate barriers.
2. Take immediate action to prevent injury to personnel and/or damage to property after a mishap.
3. Provide assistance to Incident Response Team such as to control scene, impound and secure evidence. See Appendix for Evidence Chain of Custody Document.
4. Maintain a list of employees and their respective security clearance which may be used to identify appropriate investigators based on mishap situation.
5. Perform a classification review of the endorsed mishap report to determine if any section of the report (or the whole report) needs to be classified Secret, Top Secret or if it may be authorized for public release.

g. Ames Dispatch Office shall

1. Upon notification of a mishap or close call, notify all required emergency responders including fire department, law enforcement, Protective Services and the Ames Safety Office Emergency Responders.
2. Contact Plant Engineering Branch personnel who can lock-out power systems and otherwise secure potentially hazardous areas.

h. Incident Commander shall

1. Manage emergency response resources and operations at the incident command post to resolve the emergency situation.

2. Determine and implement required protective actions for response personnel and employees at an incident site.
3. Determine when emergency operations are to be terminated and the incident scene is safe for resumption of normal operations and inform affected management.
4. Officially turn over IC Command to appropriate authority after scene is safe and secure.

i. Interim Response Team (IRT) shall

1. Determine and implement required protective actions for response personnel and employees at an incident site.
2. Preserve evidence, document the scene, identify witnesses and collect debris.
3. Only Federal Employees on the IRT can support the center Safety Office in impounding data and collecting witness statements (written statements when possible).
4. For mishaps at contractor or sub-contractor sites, the IRT will work through the Contracting Officer, with the guidance from the Legal Advisor, to obtain and impound data.
5. Advise the Supervisor/COR or CO if drug testing is required per the NPR 3792.1, Plan for a Drug Free Workplace.

   *Note: Per NPR 3792.1 the Supervisor shall initiate drug testing after mishap if the mishap results in a fatality or personal injury requiring immediate hospitalization or in damage estimated to be in excess of $10,000 to Government or private property.*

6. Adhere to the PPE requirements as defined by the Center safety office personnel or incident commander.
7. Take immediate action to prevent further injury to personnel and/or damage to any property, secure the site, limit unnecessary access, and preserve evidence.
8. The IRT response is consistent with the level of expertise necessitated by the emergency event.
9. Assist Incident Commander as requested.
10. Provide all available mishap data and evidence to the investigation authority.
11. Officially turn over control of the mishap scene to the investigation authority.

j. Contracting Officers Representative (COR) shall

1. Ensure that ARC contractors understand and follow all NASA and ARC contract requirements for mishap investigation and reporting.
2. Ensure that information for mishap reporting and corrective action implementation is stated in writing.

3. Provide a copy of the corrective action plan and objective evidence of hazard control/elimination submitted by the contractor to the Ames Safety Office.

k. Contracting Officers shall

1. Involve the Center safety office in the acquisition strategy planning activities for proposed contracts as detailed in NASA NFS Part 1807, "Acquisition Planning".
2. Incorporate applicable mishap and close call reporting and investigating procedures and corrective action requirements detailed in the NFS into contracts and grants covering NASA programs and operations.
3. Coordinate with the contractor and subcontractor sites to assist the investigating authority in gaining contractor site access, impound contractor data, and interview contractor personnel as permitted by the contract.

l. Office of the Chief Counsel shall

1. Provide legal support to mishap investigation teams and boards.
2. Review mishap information or reports prior to public release.

m. Public Affairs Office (PAO) shall

1. In the event of a Type A or B mishap, PAO will facilitate a full and timely flow of accurate, factual information to the public in close coordination with Center, Program, and Agency management. This is essential to preserve integrity and credibility in a time of crisis and also has the potential to contribute significantly to a successful recovery.
2. Provide personnel to support ARC mishap activities.

    a. Provide an authoritative spokesperson at ARC and, as rapidly as possible, at the mishap site.
    b. Provide the Center Director with the name of a PAO representative to support the Office of Space Operations for the duration of the mishap.
    c. Provide the person designated by the Center Director with copies of any impounded video, audio, or still photography related to the mishap.
    d. Advise the Center Director on appropriate dissemination of information.
    e. Brief all personnel at the site concerning procedures for dealing with media and public on scene.
    f. Manage the receipt of news queries related to the mishap and coordinate news releases with Center Director staffs and other Center PAO offices, as necessary.

n. Center Safety Office shall

1. Serve as the Center's focal point for receiving all mishap and close call reports.
2. Assist the appointing official to determine the mishap classification level.
3. Ensure that ARC's employees are familiar with the roles and responsibilities as documented within this Chapter.
4. Notify Ames senior management and NASA Headquarters within one (1) hour of the occurrence of a Type A mishap, Type B mishap, high-visibility mishap, or high-visibility close call, per NPR 8621.1B.
5. Report the mishap to Headquarters per the reporting requirements defined in NPR 8621.1B and to OSHA (when applicable).
6. Within eight (8) hours after the death of any employee from a work-related incident or the in-patient hospitalization of three or more employees as a result of a work-related incident, report the fatality/multiple hospitalization by telephone or in person to the Area Office of the Occupational Safety and Health Administration (OSHA), U.S. Department of Labor as required per 29 CFR Part 1904.39 at (800) 321-6742.
7. Support the incident commander as they safe and secure the mishap site.
8. Notify the Supervisor/COR or CO that drug testing should be initiated. Per NPR 3792.1B the Supervisor shall initiate drug testing after mishap if the mishap results in a fatality or personal injury requiring immediate hospitalization or in damage estimated to be in excess of $10,000 to Government or private property. Shall ensure that all mishaps and close calls information is entered in the NASA Mishap Information System (NMIS) within twenty-four (24) hours.
9. Impound all appropriate data, records, equipment, and facilities involved in the mishap. Work in coordination with Protective Services.
10. Collect witness statements and those obtained by employees' supervisors.
11. Retain mishap investigation records.
12. Maintain list of personnel trained in mishap investigations.
13. Identify security clearance required for responding IRT and MIB members.
14. Review and approve mishap reports and corrective action plans.
15. Verify that corrective actions have been effectively implemented and collect objective evidence of completion.
16. Identify appropriate PPE and ensure the protection of personnel from residual hazardous material prior to entry into the mishap site, if required.
17. Verify that appropriate measures have been taken to secure the mishap scene, to protect personnel from hazards and to preserve evidence.
18. Perform trend analysis and other statistical analyses of mishap and close call data.
19. Approve Type C and D mishap, or close call investigation reports.
20. Enter all findings generated by mishap investigations into the Ames Safety Accountability Program (ASAP) hazard reporting system and tracked through closure.
21. Appoint and train an interim response team (IRT)

o. Ames Health Unit shall

1. Immediately notify the Code Q Safety Contractor of all reported injuries or illness.
2. Ensure that the injured/ill employees' immediate supervisor is notified (verbally or e-mail) of the reported mishap or close call.
3. For all restricted duty or lost time injuries, ensure that the employees' immediate supervisor responds to the health unit. If the injured/ill employees' supervisor cannot be reached, continue to call the next level of management within the employees' organization until a supervisor responds.

p. Code Q Safety Contractor shall

1. Respond to and investigate all reported non-emergency mishaps or close calls within two (2) hours of notification.
2. Respond to and investigate any injury or illness reported by the Ames Health Unit within one (1) hour of notification.
3. Verbally notify the Code Q Government point of contact (POC) within one (1) hour after responding to all mishap or close call.
4. Evaluate the site of the mishap or close call with the employee and/or employees' supervisor to document the scene (photo, sketch) and ensure that any identified hazards are eliminated or mitigated.
5. Prepare a preliminary report on the mishap or close call and distribute to Government POC and all responsible parties, within four (4) hours of notification, or not later than close of business.

q. Mishap Investigator(s) shall

1. All members of the assigned mishap investigation team are required to successfully complete the web-based Introduction to Mishap Investigations training course (available on SATERN).
2. Conduct all activities in accordance with this procedural requirement and NPR 8621.1B.
3. Ensure the control and safety of the mishap area and nearby occupants, visitors, etc.
4. Obtain and analyze whatever evidence, facts, and opinions considered relevant.
5. Conduct tests and any other activity deemed appropriate.
6. Interview witnesses and receive statements from witnesses.
7. Impound property, equipment, and records as considered necessary.
8. Determine the proximate cause(s), root cause(s), and contributing factors relating to the mishap.
9. Develop recommendations to prevent similar mishaps.
10. Provide a final written report within NASA timelines that will conform to all requirements referenced in NPR 8621.1B.
11. Submit the completed signed mishap report to the appointing official within the timeframe identified by the appointing official in the appointment letter.

### 4.1.5 Notification and Reporting Requirements

4.1.5.1 When a mishap has occurred it is imperative that Ames management be notified immediately so that critical decisions can be made.

a. Employees shall

1. If witness to, or involved in a NASA mishap or close call, employees shall immediately notify Ames dispatch/emergency response, if required. From an internal NASA Ames phone dial 911, from any other phone dial (650) 604-5555. Notify the Ames Safety Office 650-604-5602 after emergency response (if required) has been initiated.
2. For non-emergency mishap and close call reporting notify both the Ames Safety Office at 650-604-5602 and your supervisor of the circumstance for the mishap or close call. Assist investigation as requested. Complete witness statements prior to leaving the mishap investigation site, to the extent possible.

b. Program/Project Managers shall

1. If witness to, or involved in a NASA mishap or close call, employees shall immediately notify Ames dispatch/emergency response, if required. From an internal NASA Ames phone dial 911, from any other phone dial (650) 604-5555.
2. Notify the Ames Safety Office 650-604-5602, the Office of the Chief Engineer and your supervisor after emergency response (if required) has been initiated Notification must be acknowledged (verbally and/or email) to meet the intent of this requirement.
3. Assist investigation as requested.
4. Complete witness statements prior to leaving the mishap investigation site, to the extent possible.
5. Submit a Quick Incident report on the NMIS web site (https://nmis.sma.nasa.gov)within twenty-four (24) hours.

c. Supervisors shall

1. Upon notification of a mishap or close call, immediately notify your organization director and the Ames Safety Office at 4-5602 of the circumstance of the mishap/close call. Notification must be acknowledged (verbally and/or email) to meet the intent of this requirement.
2. Submit a Quick Incident report on the NMIS web site (https://nmis.sma.nasa.gov)within 24 hours.

d. Organization Directors/Directorates shall

1. Determine if Ames senior management notification of the reported mishap or close call is required.
2. Immediately notify Ames senior management including Center Director, Deputy Center Director, Associate Center Director, Director of Center Operations and Chief of Staff when required. Notification must be acknowledged (verbally and/or email) to meet the intent of this requirement.

e. Center Director shall

1. Personally report, by telephone or e-mail, to the Administrator within 24 hours of learning the instance of any NASA Type A mishap, or NASA Type B mishap, and personally report (or Deputy to report), by telephone or e-mail, to the Associate Administrator within 24 hours of learning the instance of any NASA Type C mishap that involves a lost-time injury or illness.
2. Personally report, by telephone or e-mail, to the Administrator within 24 hours of any non-occupational fatality, such as sudden cardiac arrest of a NASA civil service employee or a resident contractor that occurred on site (a resident contractor is a NASA contractor whose primary place of business is on or near a NASA Center or NASA-owned facility).
3. Personally report, by telephone or e-mail, to the Administrator when it becomes known that there is any off-the-job fatality or serious injury/illness of a NASA civil service employee or resident contractor.

f. Ames Dispatch Office shall

1. Upon notification of a mishap or close call, notify all required emergency responders including fire department, law enforcement, Protective Services and the Ames Safety Office Emergency Responders.

g. Center Safety Office (Code Q) shall

1. Within thirty (30) minutes after receiving notification for type A, B, C (lost time injury) or high-visibility mishap or close call notify Ames senior management (Call List A) including Center Director, Deputy Center Director, Associate Center Director, Safety and Mission Assurance Director, Director of Center Operations and Chief of Staff. Notification must be acknowledged (verbally and/or email) to meet the intent of this requirement.
2. Within sixty (60) minutes of mishap of notification of a Type A mishap, Type B mishap, Type C (lost time injury), high-visibility mishap or close call, notify NASA Headquarters (Call List C) per NPR 8621.1B. Notification must be acknowledged (verbally and/or email) to meet the intent of this requirement.
3. Within eight (8) hours after the death of any employee from a work-related incident or the in-patient hospitalization of three or more employees as a result of a work-related incident, report the fatality/multiple hospitalization by telephone or in person to the Area Office of the Occupational Safety and

Health Administration (OSHA), U.S. Department of Labor as required per 29 CFR Part 1904.39.

4. Within twenty-four (24) hours of a Type A mishap, Type B mishap, high-visibility mishap, or high visibility close call, the Center safety office shall follow up the initial phone notification by sending an electronic notification to HQ OSMA/SARD that includes the following information: Center submitting report; author of report; author's phone number and mail code; date report submitted; time report submitted; incident date; incident time; incident general location; exact location (if known); responsible organization; organization's point of contact; point of contact's phone number and mail code; mission affected; program impact (if known); number and type of injuries or fatalities (if known); type of damage to equipment, flight hardware, flight software, or facilities; estimate of direct cost of damage; and a brief description of the mishap or close call.
5. Notify the Supervisor and/or COR/Contracting Officer when drug testing should be initiated. Per NPR 3792.1B the Supervisor shall initiate drug testing after mishap if the mishap results in a fatality or personal injury requiring immediate hospitalization or in damage estimated to be in excess of $10,000 to Government or private property.

## 4.2. Readiness to Conduct Investigations

### 4.2.1 Program and Project Mishap Preparedness and Contingency Plans

Each project that operates solely at the Center that has hazardous materials or dangerous devices is required to have an Incident Response Primer tailored to the project as a supplement to this document. Its purpose is to: provide information specific to the project for assuring planned and coordinated communication within the project regarding an incident: assure that project personnel are aware of their specific responsibilities for responding to an incident; and to assure that Emergency Responders and Interim Response Team members responding to an incident can be informed about the hazards associated with the area so that appropriate safety measures can be taken.

An example/template for an Incident Response Primer can be found in Appendix I.

Each project that operates off as well as on the Center will need to meet the requirements established in section 2.1.1 of this document.

4.2.1.1 The program/project manager shall:

a. Have the appropriate NASA Offices, at a minimum, General Counsel, OPA, OER, OSMA, and Centers (all Centers at which the program/project has activities) review and comment on the Mishap Preparedness and Contingency Plan prior to its approval.

b. Provide the Program Mishap Preparedness and Contingency Plan to OSMA/SARD for compliance review at least three weeks prior to the Safety and Mission Success Review (SMSR).
c. Submit the Program Mishap Preparedness and Contingency Plan to the Chief/OSMA for concurrence two weeks prior to the Program SMSR
d. The program/project manager shall concur in a Program/Project Mishap Preparedness and Contingency Plan that:

1. Is a comprehensive plan for all mishaps and close calls that occur offsite, at offsite program/project (as defined by NPR 7120.5) contractor sites, or in-flight.
2. Is consistent with the Centers' Mishap Preparedness and Contingency Plans, for all Centers in which the program operates.
3. Covers any information and procedures required specifically by the program that are not covered in the Centers' Mishap Preparedness and Contingency Plans (i.e., special procedures for safing, handling, or containing hazardous chemicals present in the program's/project's hardware).
4. Describes the procedures to comply with NPR 8621.1B notification, reporting, investigating, and recording requirements for all program/project activities not located at a Center or managed by a Center (e.g., program/project activities managed by Headquarters and located at a University, contractor site, or other off-center location).
5. Describes the training requirements and the IRT's membership for mishaps and close calls that occur offsite, at offsite program/project (as defined by NPR 7120.5) contractor sites, or in-flight.
6. Describes any special procedures for the emergency response personnel, the IRT, and the incident commander that are not covered in the Center Mishap Preparedness and Contingency Plan or the emergency response plan (e.g., identification and handling of hazardous commodities specific to the program).
7. Describes the procedures to impound data, records, equipment, facilities, and property not located at a NASA facility.
8. Identifies existing memoranda of agreement with national, state, and local organizations and agencies that may be utilized during a mishap investigation.
9. Describes how offsite debris shall be collected, transported, and stored.
10. Describes the investigation and debris collection process required for any mishap or close call occurring in a foreign country.
11. Requires that, for NASA-investigated mishaps, NASA personnel shall perform and control the impounding process.
12. Lists the personnel who will assist in performing the procedures to impound data, records, equipment, facilities, and other property.
13. Identifies the national, state, and local (and, where applicable, international) organizations and agencies which are most likely to take part in debris collection; identifies the roles and responsibilities of each organization; and identifies a point of contact.

14. Addresses the responsibilities and procedures for mishap investigation in the bilateral or multilateral agreements when the program involves international partners, program managers, and project managers.
15. Describes the resources that may be needed from other government agencies (e.g., Federal Emergency Management Agency, NTSB, Department of Defense, Department of Justice) during a Type A mishap or Type B mishap investigation; identifies the point of contact and contact information for each of these Agencies; describes the procedures to acquire their assistance; and identifies the potential roles and responsibilities of each Agency.
16. Includes a list of information such as databases, Web sites, documentation (including hardware history), drawings, basic system operation, and procedures that may be scrutinized in a Type A mishap involving loss of a vehicle and/or major facility damage and frequently updates this information so that it is easily deliverable to a mishap investigation board, and includes points of contact for the information.
17. Describes the information technology plan to provide computer data retrieval and data archive support to the investigating authority.
18. Describes the requisite security clearances, if any, for investigating authority members, chair, and ex officio participating in program/project investigations.
19. Describes the "chain of custody process" that will be used to secure and safeguard personal effects and sensitive information related to injured or deceased individuals.
20. Names of key personnel from the Agency Public Affairs Office and Office of External Relations (OER) that should be notified for all Type A and Type B mishaps.
21. States the expiration.

Note: Depending on the Program personnel turnover and phase (e.g., test, processing, and flight), the Program/Project Mishap Preparedness and Contingency Plan, including the contact list may need to be updated semiannually or quarterly.

4.2.1.2 The program or project Safety and Mission Assurance representative shall review and approve the Mishap Preparedness and Contingency Plan, verifying that it has the content required per this NPR (NPR 8621.1B), prior to submittal for signature.

### 4.2.2 Related Contingency Planning Documents

4.2.2.1 Ames Procedural Requirements (APR) 1601.4 Emergency Operations Plan further defines procedures and guidelines to address emergencies (natural disasters, terrorist attack, etc.). The ARC Emergency Preparedness Program focuses on continuity of the Center's critical infrastructure and is intended to quickly restore normal business operations. The APR 1601.4 Emergency Operations Plan

shall take precedence until the Incident Commander has declared the incident no longer an emergency.

4.2.2.2 WBS Charge Code Information

a. The WBS charge code number shall be used by the Center for all Center-related mishaps including, but not limited to, facility construction, facility maintenance, industrial, ergonomic, and facility slip, trip, and falls.
b. The program/project manager shall concur in a Program/Project Mishap Preparedness and Contingency Plan that includes the WBS charge code number that will be used by the Program/Project-related mishaps, whether they occur onsite, at contractor sites, or in flight including, but not limited to, program/project hardware and GSE fabrication, processing, test, inspection, operation, and decommissioning.

### 4.2.3 Mishap Preparedness and Contingency Plan Practice

4.2.3.1 The Program and Center Mishap Preparedness and Contingency Plans, including emergency response where appropriate, should be practiced during contingency simulations that occur prior to a major test, launch, or space activity.

4.2.3.2 For ongoing programs with repeated major test, launches, and space activities, the Program Mishap Preparedness and Contingency Plan, including emergency response where appropriate, should be conducted at least every 18 months.

4.2.3.3 The Ames Safety Office shall provide oversight of the Mishap Preparedness and Contingency Plan simulations.

4.2.3.4 At the conclusion of the simulation, the Center Safety Office and Program will identify any deficiencies in the Mishap Preparedness and Contingency Plan, update the plan as needed, and/or take other necessary corrective actions to assure that the plan can be effectively implemented if a mishap occurs.

### 4.2.4 Contingency Plan Web Site

4.2.4.1 All Programs and Projects shall submit their up-to-date Mishap Preparedness and Contingency Plans to OSMA/SARD for storage on the NASA Process Based Mission Assurance Secure Web Site.

Note: The mishap web site provides a secure central repository that NASA civil servants can use to find the latest versions of the contingency plans.

### 4.2.5 Contract Clauses

4.2.5.1 Contracting officers shall include appropriate mishap and close call notification, reporting, recording, and investigation procedures in NASA contracts.

4.2.5.2 The Ames safety office shall involve itself in acquisition strategy meetings per NFS Part 1807, Acquisition Planning, to assure that the appropriate mishap and close call reporting, investigating, and evaluation criteria are incorporated into contracts

### 4.2.6 Training

4.2.6.1 The Occupational Safety Health and Medical Services (Code QH) office shall provide the following training:

| IRT Training | Skills | Class Title |
|---|---|---|
| All IRT Members | • Understand the investigating authority's roles and responsibilities<br>• NASA policy and procedures<br>• Understand root cause analysis<br>• Understand Incident Command Structure | • NASA Preliminary Interim Response Team Training<br>• NASA Mishap Investigation Introductory Training |
| All IRT Members | Note: Additional training requirements may also apply to IRT members depending on operational needs. Training may include but not limited to: | • Fall Protection<br>• Lock Out Tag Out<br>• PCB Awareness<br>• Back Injury Prevention<br>• Asbestos Awareness<br>• Blood Borne Pathogens<br>• Confined Space<br>• Hazard Communication Training<br>• Hearing Conservation |

| | | |
|---|---|---|
| | | • Lead Awareness<br>• Personal Protective Equipment<br>• Respiratory Protection |
| Mishap Investigation Board | • Understand the investigating authority's roles and responsibilities<br>• NASA policy and procedures<br>• Understand root cause analysis | • NASA Mishap Investigation Introductory Training<br>• Root Cause Analysis Training |

## 4.3. Initial Response to a Mishap or Close Call

### 4.3.1 Safe the Mishap Site and Initiate Mishap Preparedness and Contingency Plan(s)

4.3.1.1 After the initial notifications are made, the supervisor shall provide any necessary assistance to safe the mishap site until the emergency response and/or personnel from the Center safety office arrive.

4.3.1.2 Upon notification of a mishap, the Center safety office shall initiate the Center Mishap Preparedness and Contingency Plan.

4.3.1.3 In the event of a program/project mishap, the program shall activate its Mishap Preparedness and Contingency Plan.

4.3.1.4 In accordance with the Center Mishap Preparedness and Contingency Plan, the incident commander, with support from the responsible organization, IRT, Center safety office, Center security office, emergency response personnel, and supervisor, shall take immediate action to prevent further injury to personnel and/or damage to any property and secure the site.

4.3.1.5 The incident commander and emergency response personnel shall have the authority to take action to mitigate dangerous conditions, direct emergency response actions, and/or clean up a hazardous materials release.

4.3.1.6 The Center safety office and incident commander shall ensure protection of personnel from residual hazardous material prior to entry into the mishap site.

4.3.1.7 The Center safety office and/or incident commander shall stipulate the type of personal protective equipment (PPE) required.

4.3.1.8 Every professional supporting the investigation, including the IRT and investigating authority, shall adhere to the PPE requirements as defined by the Center safety office personnel or incident commander.

### 4.3.2 Initiate Drug Testing

4.3.2.1. Per NPR 3792.1B the Supervisor shall initiate drug testing after mishap if the mishap results in a fatality or personal injury requiring immediate hospitalization or in damage estimated to be in excess of $10,000 to Government or private property.

a. For Civil Servant drug testing contact the NASA Shared Services Center (NSSC) at 877-677-2123 twenty-four (24) hours a day, 7 days a week.
b. For Contractor drug testing contact their Contracting Officer Representative (COR) and Contracting Officer (CO).

### 4.3.3 Impounding Data

4.3.3.1 Organizations shall safeguard (impound) appropriate records, equipment, and facilities and secure the site. Organizations include: Occupational Safety Health and Medical Services, Supervisor of area or employee involved, Mishap Investigator and Ames Protective Services.

4.3.3.2 The Occupational Safety Health and Medical Services (Code QH), as part of the IRT and with the assistance of the supervisor for the area or persons involved, shall impound all appropriate data, records, equipment, and facilities that may be involved in the incident.

4.3.3.3 The Occupational Safety and Medical Services (Code QH) as part of the IRT will work with the Office of Information Technology for computer data retrieval and data archive support.

4.3.3.4 When the investigation is over, all data will be returned to the originating organization for filing. Only the investigating authority may release impounded data, records, equipment, or facilities. The investigating authority may not release data

and records unless copies of the documents are made and retained with mishap investigation records.

### 4.3.4 Chain of Custody

4.3.4.1 Protective Services (Code JP) shall implement established custody process, including securing personnel effects and sensitive information related to injured or deceased individuals.

Note: Although similar to general "impoundment of records," "chain of custody for personnel effects and sensitive information" requires 100% accountability of custody documented on the Evidence Chain of Custody Form located in the Appendix.

4.3.4.2 Efforts to impound records or property shall begin immediately, long before the formal investigation board members arrive on the scene. Direct initial efforts toward identifying and consolidating evidence or data. The investigation may not be limited to data generated concurrently or as a result of the mishap. It should also include historical, environmental, operational, psychological, and other factors bearing on the situation.

4.3.4.3 The organization responsible for impounding records shall supply the investigation board with all impounded records and brief the members on status of impoundment as soon as practical after preservation of evidence efforts has started. Data to be impounded may include checkout logs, training tapes, test and checkout record charts, launch records, weather information, telemetry tapes, and other documents essential for investigative evaluation.

4.3.4.4 Impoundment area shall be secure and have shelves or file cabinets adequate to store all expected data, tapes, disks, etc. A filing system is important. It need only be as complex as the volume of data dictates. The key is for all data to be systemically stored, retrieved, issued, tracked, recited and re-stored efficiently, effectively, and accurately. When the investigation is over, all data should be returned to the originating organization for filing. Only the investigating authority may release impounded data, records, property, or facilities. The investigating authority shall not release data and records unless copies of the documents are made and retained with mishap investigation records.

## 4.4. Mishap Investigation Process

### 4.4.1 Overview of Mishap Investigation Process

4.4.1.1 The purpose of mishap investigation is to determine the cause(s) and implement effective corrective actions in order to prevent recurrence of similar mishaps at Ames.

4.4.1.2 All Ames mishaps shall be investigated per NPR 8621.1B, NASA Procedural Requirements for Mishap and Close Call Reporting, Investigating, and

| PROCESS PHASE | RESPONSIBLE ORGANIZATION | APPOINTING OFFICIAL | SMA RESPONSIBLE ORGANIZATION | MISHAP INVESTIGATION BOARD/MEMBERS |
|---|---|---|---|---|
| INITIAL REPORT OF MISHAP | ♦ Report Mishap Occurance | | ♦ Notify HQ if Applicable | |
| SECURING MISHAP SITE | ♦ Initially Secure the Site | | ♦ Impound Records, Secure Data | |
| APPOINT MISHAP INVESTIGATION BOARD/MEMBERS | | ♦ Determine Level of investigation<br>♦ Appoint Independent Investigation Board/Team Members | ♦ Familirize Members with Investigation Process | |
| INVESTIGATE MISHAP | ♦ Support Investigation Data Requests | ♦ Support Investigation<br>♦ Accept Investigation Report | ♦ Support Investigation<br>♦ Distribute Findings to Other Organizations | ♦ Evaluate Data<br>♦ Produce Findings |
| DEVELOP CORRECTIVE ACTION PLAN | ♦ Develop Corrective Action Plan | ♦ Approve Corrective Action Plan | ♦ Support Appointing Official's Assessment of Corrective Action Plan | |
| IMPLEMENT CORRECTIVE ACTIONS | ♦ Effectively Implement Corrective Actions | ♦ Track Corrective Actions | | |
| ASSURE CORRECTIVE ACTION COMPLETION | ♦ Report Closure to Appointing Official | ♦ Close Corrective Actions<br>♦ Produce Mishap Summary Report | ♦ Verify completion of Corrective Action (sampling) | |
| ASSESS CORRECTIVE ACTION EFFECTIVENESS | ♦ Address Ineffective Corrective Actions | ♦ Submit the Corrective Actions and the Mishap Report to the Approving Official | ♦ Assess Corrective Action Effectiveness | |

Recordkeeping (See Figure 2: NASA Mishap Investigation Process).

## 4.5. Mishap Report

### 4.5.1 Develop the Mishap Report

4.5.1.1 The investigating authority shall develop a mishap report in accordance NPR 8621.1 NASA Procedural Requirements for Mishap and Close Call Reporting, Investigating, and Recordkeeping.

4.5.1.2 Witness statements, witness names, and names of those involved in the mishap or related activities shall not be included as a part of the mishap report.

4.5.1.3 The mishap report shall be technically accurate; properly documented; easily understood; have traceability between facts, findings, and recommendations.

### 4.5.2 Mishap Report Signatures

4.5.2.1 The signatures of the Investigating authority and ex officio demonstrate their approval of the mishap report. If the mishap report is approved, the appointing official shall immediately send the approved report with endorsements/comments to the Center Public Affairs Office, Legal Counsel, Export Administrator and Office of Protective Services for review.

4.5.2.2 The following signatures demonstrate review of the mishap report; that it meets NASA policies and procedures in each functional area:

a. PAO Advisor: This signature indicates that any privileged or proprietary information, ITAR information, EAR information, or material subject to the Privacy Act has been identified and marked as non-releasable to the public (e.g., NASA Sensitive But Unclassified); and that volumes/appendices that are releasable to the public are identified.
b. Legal Counsel: This signature indicates that any privileged or proprietary information, International Traffic Arms Regulations (ITAR) information, Export Administration Regulations (EAR) information, or material subject to the Privacy Act has been identified and marked as non-releasable to the public (e.g., NASA Sensitive But Unclassified); and that volumes/appendices that are releasable to the public are identified.
c. Export Administrator: This signature indicates that any ITAR information and EAR information has been identified and marked as non-releasable to the public (e.g., NASA Sensitive but Unclassified).
d. Contracting Officer (Procurement): This signature indicates that any proprietary information or material subject to the Privacy Act has been identified and marked as non-releasable to the public (e.g., NASA Sensitive but Unclassified).

e. Protective Services: This role is to review the report to determine if any information in the report should be classified Secret or Top Secret.

1. For Type D mishaps and Close Calls, the Center Director, via documentation in the Center Mishap Preparedness and Contingency Plan, may allow the authorization for public release to occur only after a Freedom of Information Act (FOIA) request is made. However, this does not negate the responsibility to place lessons learned into the lessons learned information system.
2. Within ten (10) workdays of the request, the Export Administrator, OPA, Office of Protective Services, Procurement, and legal counsel shall review and authorize the mishap report.

## 4.6. Post-Investigation Activities

### 4.6.1 Develop Corrective Action Plan

4.6.1.1 Responsible organizations will develop and submit a written Corrective Action Plan (CAP) (Appendix D) within fifteen (15) days from being tasked. Corrective action plan shall include the following:

a. Description of the proposed corrective actions and an estimated completion date for each.
b. Identification of the NASA organization, contractor organization, or grantee organization (to the lowest level) that is responsible for ensuring completion of the corrective action.
c. Matrix or other means of matching corrective actions to all findings and recommendation.
d. Review of any process changes required based on corrective actions.

1. Provide objective evidence of all corrective actions upon completion of the CAP.
2. All findings generated by mishap investigations will be entered into the Ames Safety Accountability Program (ASAP) hazard reporting system by the Center Safety Office and tracked through closure.

### 4.6.2 Monitor and Closeout CAP

4.6.2.1 The Ames safety office shall monitor corrective action activities to determine if they were carried out according to the plan.

4.6.2.2 When the corrective actions are closed, for type A and B mishaps, the appointing official shall develop and provide a CAP closure statement to the Ames

safety office and the responsible organization to notify them that the corrective action plan is closed.

4.6.2.3 The Center safety office shall verify that the CAP is complete and all elements of the investigation have been completed and correctly recorded in NMIS.

### 4.6.3 Lessons Learned

4.6.3.1 Following the authorization of the mishap report for public release, the appointing official shall designate a person or team of persons to develop the lessons learned identified in the mishap report.

4.6.3.2 The individual or team shall develop lessons learned that, at a minimum, include the executive summary, findings, and recommendations from the mishap report that are authorized for public release.

4.6.3.3 Program and/or project managers that have mission failures or NASA mishaps for long-duration missions shall develop lessons learned for possible application to existing or future programs.

4.6.3.4 Within ten (10) workdays of being tasked, the person or team assigned to develop lessons learned shall submit the prepared lessons learned to the appointing official.

4.6.3.5 Prior to submission into NASA Lessons Learned Information System (LLIS), NASA program and policy officials, including, but not limited to, legal, import/export control, and public affairs, shall:

a. Review the proposed lessons learned to ensure they are consistent with NASA policy and do not contain any privileged or proprietary information, ITAR information, EAR information, or material subject to the Privacy Act. b. Provide the appointing official with a written statement indicating that the lessons learned are cleared for submission into the NASA LLIS.

4.6.3.6 Based on the results of the review of the lessons learned, the appointing official shall either accept or reject the lessons learned and forward accepted lessons learned to the NASA LLIS.

### 4.6.4 Retention of Mishap Reports and Records

4.6.4.1 Mishap reports and associated records shall be retained in NMIS in accordance with NPR 1441.1D, "NASA Records Retention Schedules".

| Mishap Report Retention Schedule Summary | | |
|---|---|---|
| **Record Type** | **Disposal Authority** | **Disposition** |
| Mishap Incident Case Files | NRRS 1, 121, B | Retire to Federal Records Center at 4 years. |
| Mishap Investigation Board Files | NRRS 1, 122 | PERMANENT. Retire to Federal Records Center at 2 years. |

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## Appendix A. Terms and Definitions

Appointing Official: The official authorized to appoint the investigating authority for a mishap or close call, to accept the investigation of another authority, to receive endorsements and comments from endorsing officials, and to approve the mishap report.

ARC Personnel: Civil Servants, Ames Exchange Employees, Interns, Contractors and anyone working at the Ames Research Center site.

Center Safety Office: Safety and Mission Assurance (Code Q)

Contributing Factor: An event or condition that may have contributed to the occurrence of an undesired outcome but, if eliminated or modified, would not by itself have prevented the occurrence.

Corrective Actions: A systematic approach to discrepancies failures and/or deviations in an attempt to prevent their recurrence. Corrective actions may include but are not limited to: changes to design processes, work instructions, workmanship practices, training, inspections, tests, procedures, specifications, drawings, tools, equipment, facilities, resources, or material that results in preventing, minimizing, or limiting the potential for recurrence of a mishap.

Direct Cost of Mishap or Close Call: (For the purpose of mishap classification). The sum of the costs (the greater value of actual or fair market value) of damaged property, destroyed property, or mission failure, actual cost of repair or replacement, labor (actual value of replacement or repair hours for internal and external/contracted labor), cost of the lost commodity (e.g., the cost of fluid that was lost from a ruptured pressure vessel, as well as resultant costs such as environmental decontamination, property cleanup, and restoration, or the best official estimate of these costs.

Emergency Operations Plan: Defines procedures and guidelines to address emergencies (natural disasters, terrorist attack, etc.).

Event: A real-time occurrence describing one discrete action, typically an error, failure, or malfunction. Examples: pipe broke, power lost, lightning struck, and person opened valve.

Ex Officio: An individual authorized to participate in all investigation proceedings and tasked to assure that the investigation is conducted in conformance with NASA policy and NPR 8621.1B.

Finding: A conclusion, positive or negative, based on facts established during the investigation by the investigating authority (i.e., cause, contributing factor, and observation).88

First Aid: Refer to OSHA definition in 29 CFR 1904.7 for the complete list of First Aid treatments.

High Visibility (Mishaps or Close Calls): Those particular mishaps or close calls, regardless of the amount of property damage or personnel injury, that the Administrator, Chief/OSMA, Center Director, ED/OHO, or the Center SMA director judges to possess a high degree of programmatic impact or public, media, or political interest including, but not limited to, mishaps and close calls that impact flight hardware, flight software, or completion of critical mission milestones.

Incident: An occurrence of a mishap or close call.

Investigating Authority: The individual mishap investigator, mishap investigation team, or mishap investigation board authorized to conduct an investigation for NASA. This includes the mishap investigation board chairperson, voting members, and ex officio but does not include the advisors and consultants.

Interim Response Team (IRT): A team that arrives at the mishap scene immediately after an incident; secures the scene; documents the scene using photography, video, sketches, and debris mapping; identifies witnesses; collects written witness statements and contact information; preserves evidence; impounds evidence (at the scene and other NASA locations as needed); collects debris; implements the chain-of-custody process for the personal effects of the injured and deceased; notifies the NASA Public Affairs Officer about casualties, damages, and any potential hazards to the public and NASA personnel; advises the supervisor if drug testing should be initiated; and provides all information and evidence to the investigating authority. The team is considered "interim" because it operates as a short-term response team and concludes its mishap-response activities when the official NASA-appointed investigating authority arrives to the scene and takes control.

Lessons Learned: The written description of knowledge or understanding that is gained by experience, whether positive (such as a successful test or mission), or negative (such as a mishap or failure).

Mishap: An unplanned event or series of events resulting in death, injury, occupational illness, damage to or loss of equipment or property. Also see Description of Mishaps and Close Calls section.

Mishap Investigation Board (MIB): A NASA-sponsored team that:

a. Is appointed for a Type B mishap, Type C mishap, Type D mishap, or close call investigation.
b. Consists of an odd number of Federal employees (including the chairperson) where the majority of the members are independent from the operation or activity in which the mishap occurred. (The actual number of members chosen is determined by the appointing official).
c. Generates Report per NPR 8621.1B.

Mishap Investigator: A Federal employee who has expertise and experience in mishap or close call investigation; has knowledge of human error analysis in mishaps; serves as the sole investigator for a Type C mishap, Type D mishap, or close call; and is tasked to investigate the mishap or close call and generate the mishap report. Note: A single mishap investigator may be assigned to a Type B mishap based upon mishap severity and with NASA headquarters approval.

Mishap Preparedness and Contingency Plan: Pre-approved documents outlining timely organizational activities and responsibilities that must be accomplished in response to emergency, catastrophic, or potential (but not likely) events encompassing injuries, loss of life, property damage, or mission failure.

Mission Failure: A mishap of whatever intrinsic severity that, in the judgment of the program/project manager, or the Chief of the Safety Mission Assurance (SMA), prevents the achievement of primary NASA mission objectives as described in the mission operations report or equivalent document.

NASA Mishap Information System (NMIS): at https://nmis.sma.nasa.gov
NMIS is a comprehensive NASA agency wide web based system that provides the following: 1) Tracks information on all occupational and non-occupational (personal) injuries and illnesses and 2) Manages information about events or conditions of environmental, health or safety significance. Functionality includes hazard tracking and "quick incident" reporting (including electronic anonymous reporting and tracking).

Objective Evidence: Physical evidence that someone, when reviewing the documentation, can inspect and evaluate for themselves. It provides compelling

evidence that the corrective action or audit was actually performed as indicated and that the criteria was upheld.

Proximate Cause: The event(s) that occurred, including any condition(s) that existed immediately before the undesired outcome, directly resulted in its occurrence and, if eliminated or modified, would have prevented the undesired outcome. Also known as the direct cause(s).

Root Cause: One of multiple factors (events, conditions, or organizational factors) that contributed to or created the proximate cause and subsequent undesired outcome and, if eliminated or modified, would have prevented the undesired outcome. Typically, multiple root causes contribute to an undesired outcome.

SATERN. System for Administration, Training, and Educational Resources for NASA at: https://satern.nasa.gov

Occupational Safety Health and Medical Services (Code QH): Organization responsible for preserving, and protecting the health and safety of the workforce at NASA ARC. Code QH manages the Mishap and Contingency program and ensures its implementation.

Observation: A factor, event, or circumstance identified during the investigation that did not contribute to the mishap or close call, but, if left uncorrected, has the potential to cause a mishap or increase the severity of a mishap; or a factor, event, or circumstance that is positive and should be noted.

Property Damage: Damage to any type of government or civilian property, including, but not limited to, flight hardware, flight software, facilities, ground support equipment, and test equipment.

Recommendation: An action developed by the investigating authority to correct the cause or a deficiency identified during the investigation.

Responsible Organization: The organization responsible for the activity, people, or operation/program where a mishap occurs or the lowest level of organization where corrective action shall be implemented.

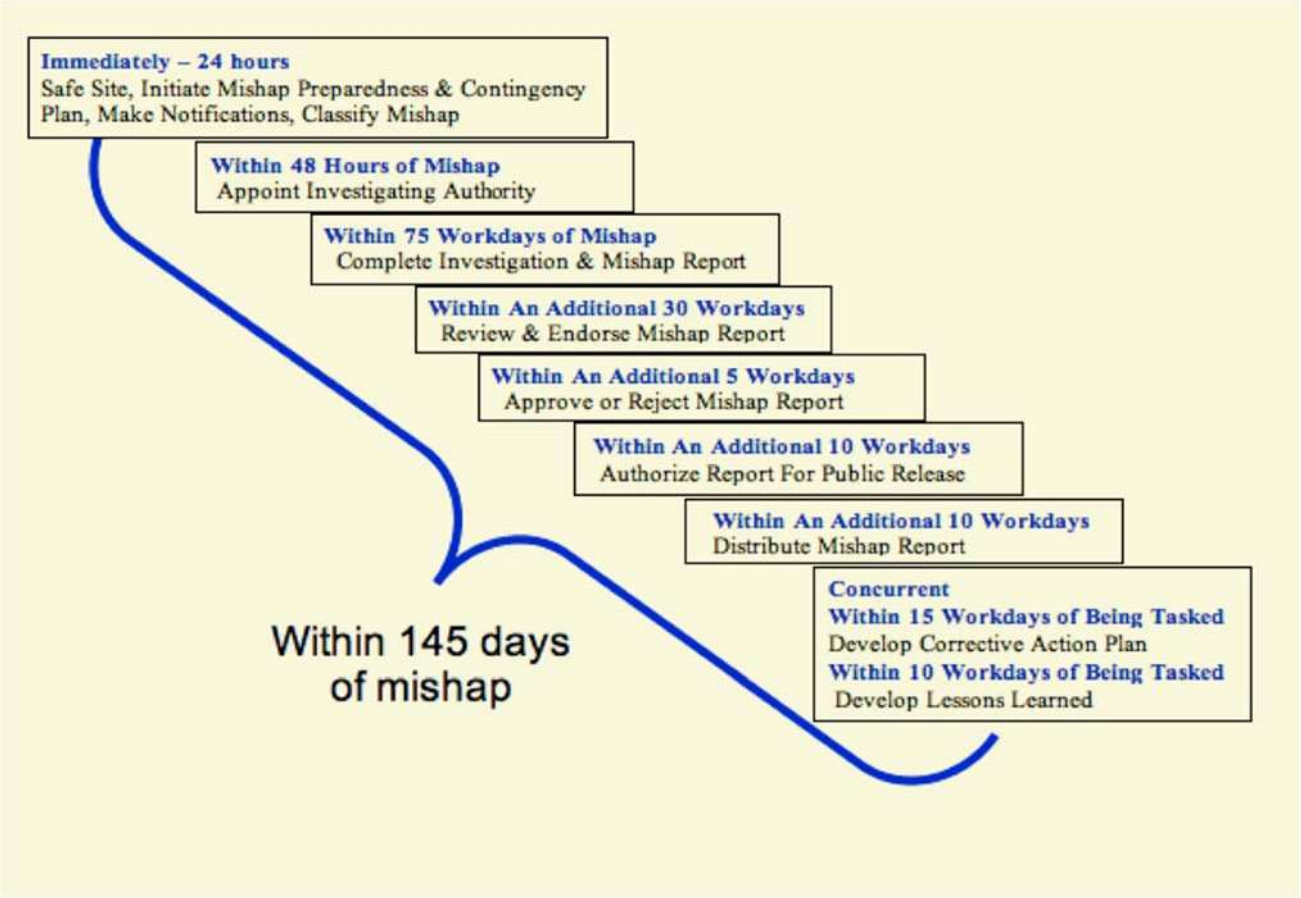
Witness Statements: A verbal or written statement from a witness that describes his/her account including a description of the sequence of events, facts, conditions, and/or causes of the mishap.

**Appendix B. Acronyms**

| | |
|---|---|
| AMD | Aircraft Management Division |
| APR | Ames Procedural Requirements |
| ARC | Ames Research Center |
| ASAP | Ames Safety and Accountability Program |
| ATP | Acceptance Test Procedure |
| CAP | Corrective Action Plan |
| CFR | Code of Federal Regulations |
| Chief/OSMA | Chief, Safety and Mission Assurance |
| CHMO | Chief Health and Medical Officer |
| CO | Contracting Officer |
| COR | Contracting Officers Representative |
| EAR | Export Administration Regulations |
| ERC | Emergency Response Coordinator |
| FAR | Federal Acquisition Regulation |
| FOIA | Freedom of Information Act |
| GSE | Ground Support Equipment |
| HQ | Headquarters |
| IA | Investigating Authority |
| IAP | IAP Worldwide Services Inc. (Facilities Contractor) |
| IC | Incident Commander |
| IG | Inspector General |
| | |
| IRT | Interim Response Team |
| ITAR | International Traffic Arms Regulations |
| NAARS | NASA Aviation Anomaly Reporting System |
| NASA | National Aeronautics and Space Administration |
| NFAF | NASA Family Assistance Fund |

| | |
|---|---|
| NSSC | NASA Shared Services Center |
| LLIS | Lessons Learned Information System |
| MDAA | Mission Directorate Associate Administrator |
| MI | Mishap Investigator |
| MIB | Mishap Investigation Board |
| MIT | Mishap Investigation Team |
| NFS | NASA Federal Acquisition Regulation Supplement |
| NMIS | NASA Mishap Information System |
| NPD | NASA Policy Directive |
| NPR | NASA Procedural Requirements |
| NTSB | National Transportation Safety Board |
| OCE | Office of the Chief Engineer |
| OER | Office of External Relations |
| OIG | Office of Inspector General |
| OJT | On-the-Job Training |
| OPA | Office of Public Affairs |
| OPS | Operations |
| OSHA | Occupational Safety and Health Administration |
| OSMA | Office of Safety and Mission Assurance |
| OSMA | Headquarters Office of Safety and Mission Assurance |
| PAO | Public Affairs Office |
| POC | Point of Contact |
| PPE | Personal Protective Equipment |
| SMA | Safety and Mission Assurance |
| WBS | Work Breakdown Structure |

## Appendix C. Mishap Investigation Notional Time Line



## Appendix D. Interim Response Team (IRT) Check List

| IRT Check List for Initial Actions | | | | |
|---|---|---|---|---|
| **Action to Take** | | **Resource** | **Actionee** | **Date/Time Done** |
| 1. | Assemble response personnel and equipment for transport to the scene or, if at the scene, accessible to the current Incident Commander. If first at the scene, assume command, take appropriate action and summon resources as needed. | Go Kit<br><br>Ames Mishap Reporting, Investigation and Contingency Plan | IRT | |
| 2. | Report into the Incident Commander, obtain briefing on known hazards. | Incident Commander<br><br>Safety Office | IRT | |
| 3. | **Identify hazards at site.**<br><br>__For outdoor site, remain upwind, clear of unknown substances. Remain in breathable atmosphere.<br><br>__For indoor site, remain clear of enclosed/confined spaces until atmospheric hazards are identified.<br><br>__If explosives are suspected present, expert personnel must control the hazard. Safe distance and direction must be established from explosives. Do not transmit RF energy without concurrence of explosives handler.<br><br>__Brief personnel to immediately notify Incident Commander when discovering hazardous material not already identified. | Incident Commander<br><br>Safety Office | IRT | |
| 4. | **Establish PPE requirements for** | Safety Office | IRT | |

| | | | | | |
|---|---|---|---|---|---|
| | **IRT and supporting professionals at the scene.**<br><br>__Brief all concerned personnel and ensure PPE used meets all requirements.<br><br>__Communicate consumable PPE requirements to Center Safety Office.<br><br>***Note**: Non-NASA personnel must provide their own PPE that meets requirements to be allowed perimeter entry.* | | Incident Commander | | |
| 5. | Gather evidence from a safe distance until Emergency Responder Incident Commander is ready to turn scene over to IRT.<br><br>__Use available methods for acquiring evidence about the wreckage:<br><br>○ Aerial/telephoto photography.<br>○ Responders on scene as potential witnesses.<br>○ Audio/video recording of scene.<br>○ Impoundment.<br><br>***Note**: Only Federal Employees on the IRT shall support the center Safety Office in impounding data and collecting witness statements (written statements when possible).* | | Go Kit<br><br>Appendix: Gathering Essential Information Form<br><br>Appendix: Witness Statement Form<br><br>Appendix: Evidence Chain of Custody Form | IRT | |
| 6. | **Take command of scene from emergency response personnel.**<br><br>__Receive a debriefing from the | | Safety Office<br><br>Appendix: Resources | Incident Commander<br><br>IRT | |

| | | | | |
|---|---|---|---|---|
| | Incident Commander.<br><br>__Instruct police or security personnel present on known hazard areas at the scene and need to keep unauthorized personnel clear.<br><br>__Establish a security perimeter.<br><br>__Designate the entry/exit point.<br><br>__Wait until hazardous energy transfers (fire, explosion, breached radioactive containers) are eliminated if hazardous material (HAZMAT) is present. | Ames Fire Department<br><br>Protective Services | | |
| 7. | Mitigate risks to personnel at scene to level allowing safe evidence collection by IRT using specified PPE. | Safety Office<br><br>Go Kit | IRT | |
| 8. | Advise the Supervisor/COR or CO if drug testing should be requested per the NPR 3792.1, Plan for a Drug Free Workplace.<br><br>***Note**: Per NPR 3792.1 the Supervisor shall initiate drug testing after mishap if the mishap results in a fatality or personal injury requiring immediate hospitalization or in damage estimated to be in excess of $10,000 to Government or private property.* | Safety Office<br><br>NPR 3792.1 | IRT | |
| 9. | Ensure all potential classified equipment or information is covered or shielded from view. | Go Kit<br><br>Appendix: Gathering Essential Information Form | IRT | |
| 10. | Authorize essential personnel to | Appendix: | IRT | |

| | | | | |
|---|---|---|---|---|
| | enter perimeter and assess the scene. | Resources | | |
| 11. | **Collect perishable evidence** after photographed and location plotted (paper, ice shapes, etc.). Consider potential evidence using SHELL model:<br><br>__Software - perishable memory, code, ephemeral documents.<br><br>__Hardware - components immediately threatened by environmental damage.<br><br>__Environment - marks, ground scars, evidence that can easily be changed or lost.<br><br>__Liveware (individual) - witnesses and associated documents.<br><br>__Liveware (team) - perishable records of team activities (audio/video tape, notes). | Go Kit<br><br>Appendix: Gathering Essential Information Form | IRT | |
| 12. | If a fatality occurred, coordinate and consult to determine medical jurisdiction and arrange for forensic analysis. | Ames Health Unit<br><br>Protective Services | IRT<br><br>Medical Professional | |
| 13. | Document the condition of the debris and the site as soon as possible. Take comprehensive photographs (and video, if available) of all damage and components. Account for all major structural components if possible. Since rescue and investigation efforts in inclement weather may obliterate environmental evidence, take the following types of photos as soon as possible: | Go Kit<br><br>Appendix: Gathering Essential Information Form<br><br>Appendix: Witness Statement Form | IRT<br><br>Investigating Authority | |

| | | | | |
|---|---|---|---|---|
| | __Required photos of fatalities (Note: interim medical member has priority for all photographic resources until this step is complete.).<br><br>__Initial ground impact marks such as ground tree scars and broken branches; record location and time each photo was taken.<br><br>__Aerial photos, if practical.<br><br>__Responders on scene as potential witnesses.<br><br>__Impoundment.<br><br>***Note**: Only Federal Employees shall collect witness statements (written statements when possible).* | Appendix: Evidence Chain of Custody Form | | |
| 14. | **Accomplish the following actions if a mishap vehicle wreckage must be removed immediately for safety reasons:**<br><br>__Record, photograph, etch, diagram positions of actuators instruments, switches, and impact areas, as applicable, and list location when tagging components in the wreckage. Identify any known hazardous material on tag.<br><br>__Photograph the position and components of the wreckage as well as the impact areas.<br><br>__Obtain fluid and compressed gas samples from components if possible. | Go Kit<br><br>Appendix: Gathering Essential Information Form<br><br>Appendix: Evidence Chain of Custody Form | IRT | |

| | | | | |
|---|---|---|---|---|
| | __Inform crash removal crews they may begin removing the wreckage after all actions are complete, if applicable.<br><br>__Ensure Employee Assistance Program (EAP) stress management services are available on site and on base for all responders.<br><br>__Monitor emergency assistance to civilians and next of kin to ensure they receive adequate help and information. | | | |
| 15. | Try to keep witnesses separated until they have been examined by medical personnel as needed and initial interviews have been conducted. Accuracy of witness statements can be degraded by conversation about mishap events between witnesses. | Appendix: Witness Statement Form | IRT | |
| 16. | Collect witness statements. Issue privilege statement and form within twenty-four (24) hours of mishap or close call. | Appendix: Witness Statement Form | IRT<br><br>Center Safety Office<br><br>Investigating Authority | |
| 17. | Prepare a hand off briefing for the MIB chairperson containing at least the following information:<br><br>__Location and condition of mishap site, including collateral property damage.<br><br>__Actions taken by the Incident Commander/ Emergency Response personnel that affected the wreckage/debris field. | Go Kit<br><br>Appendix: Gathering Essential Information Form<br><br>Appendix: Witness Statement Form | IRT | |

| | | | | | |
|---|---|---|---|---|---|
| | __Location/condition of participants/survivors including any bystanders killed or injured.<br><br>○ Status of toxicological testing, autopsies, etc...<br>○ Status of next-of-kin notification.<br><br>__Location/condition of wreckage including all classified equipment (is there pressure to move wreckage?).<br><br>__Presence of explosives, composites, pathogens, or other hazardous materials at scene.<br><br>__Civil authorities involved in managing scene and/or casualties.<br><br>__Status of impoundment actions.<br><br>__Status of witness search/statement collection.<br><br>__Notifications issued to date.<br><br>__Technical assistance immediately available, offered, or en route.<br><br>__Media interest/statements made to date.<br><br>__Logistical arrangements in place for MIB as follows:<br><br>○ Workspace<br>○ Impound area<br>○ Communications<br>○ Accommodations<br>○ Personal equipment | Appendix: Evidence Chain of Custody Form | | |

| | | | | |
|---|---|---|---|---|
| | ○ Other as specified | | | |
| 18. | Officially turn over control of the mishap scene to the investigation authority. | Ames Mishap Reporting, Investigation and Contingency Plan | IRT | |

## Appendix E. Gathering Essential Information

Gather as much of the information listed below as possible to provide sufficient details to the emergency responders and management:

Time of Mishap: _____

Location of Mishap _____

Condition of Personnel Involved: _____

_____

_____

Description of Mishap:

_____

_____

_____

Property Damage/Injury to Public: _____

_____

_____

Known Witnesses: _____

Name Phone Number(s) _____

_____

_____

Your name and phone number where you can be immediately reached for further information:

_____ _____

Name Phone number

**Appendix F. Witness Statement**

National Aeronautics and Space Administration
Written Witness Statement Form 08-06


It is important that witnesses be interviewed as soon as possible after the occurrence of a mishap in order to obtain the best recall of information that might assist in the identification of causal factors. Immediately after a mishap, this form must be completed by the witness. The written statement is intended to provide the witness's account of the mishap including a description of the sequence of events, facts, conditions, and/or causes of the mishap. The witness will give the completed form directly to a member of the NASA Center Safety Office or the NASA Interim Response Team.

The purpose of the NASA safety mishap investigation is to identify the proximate cause(s) and root cause(s) of the mishap and to develop recommendations that prevent the occurrence of similar mishaps. The NASA safety mishap investigation process conducted per the NASA Procedural Requirements 8621.1B (NPR 8621.1B) does not assess blame and is completely separate from any proceedings the Agency may undertake to determine civil, criminal, or administrative culpability or liability.

Your testimony is entirely voluntary, but we hope that you will assist the investigating authority to the maximum extent of your knowledge of this matter.

Your testimony will be documented and retained as part of the mishap report background files but will not be publicly released with your name as part of the mishap report. The investigating authority will make every effort to keep your testimony confidential and privileged to the greatest extent permitted by law.

Note: There are three circumstances when your testimony may be released from the control of the investigating authority and would no longer be considered privileged:

1. When the investigating authority or NASA is ordered to release the testimony by a court or administrative body outside NASA, either being of competent jurisdiction.
2. When the Inspector General (IG) makes a written request to the NASA Administrator. The IG, by law, is permitted access to all records, reports, audits, reviews, documents, papers, recommendations, or other material available to the applicable establishment which relate to programs and operations. The Office of Inspector General rarely makes this request. The IG respects and, as a general rule, will defer to the disclosure restrictions attendant to NASA mishap investigations. Upon receipt of such testimonial information, the IG will consider

it to be confidential witness testimony and will treat it as such to the full extent required by the Inspector General Act of 1978.

3. When NASA experiences the loss of a Space Shuttle, the loss of the International Space Station, or its operational viability, or the loss of any other U.S. space vehicle carrying humans. For these cases, by law, an independent Presidential Commission will be formed and the contents of this written statement may be provided to the Commission.

I have read the above information and understand that NASA will make every effort to protect the information provided to the greatest extent permitted by law, and I understand the three circumstances when my testimony may be released.

Printed Name: _____ Signature: _____

**Witness Statement**

National Aeronautics and Space Administration
Written Witness Statement Form 08-06

Date of Witness Statement: _____ Time of Witness Statement: _____

**Witness**

Name: _____ Phone: _____

Email: _____

Company/Department: _____

Mail Code: _____ Job Title: _____

Age: _____ Years in Job: _____

Time of Mishap: _____

Your Location at Time of Mishap. (If needed, you may draw on the back of this form to show your location in referenc other objects, equipment, or people):

Building and Room: _____

Additional Details About Your Location:

_____

_____

Your Activity At Time of Mishap:

_____

_____

_____

Please describe to the best of your memory **what happened** at the time of the mishap. You may write on the back of thi (or request another page) if you need additional space.

_____

_____

_____

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_____

Please describe why you think the mishap occurred

# Appendix G. Evidence Chain of Custody

**NASA Mishap Investigation Evidence and Property Custody Document**

**NOTE:** Chain of Custody to be performed by NASA Personnel Only

| | |
|---|---|
| CONTROL NUMBER | RECEIVING ACTIVITY NAME, LOCATION |
| LOCATION WHERE PROPERTY OBTAINED | NAME AND TITLE OF PERSON FROM WHOM RECEIVED<br>□ OWNER<br>□ OTHER |
| | ADDRESS (include ZIP) |
| | WORK PHONE |
| PURPOSE FOR WHICH OBTAINED<br>□ FOUND □ EVIDENCE<br>□ IMPOUNDED □ OTHER _____ | DATE OBTAINED / NUMBER |

| ITEM | QUANTITY | DISPOSAL ACTION | DESCRIPTION OF ITEM (Model No., Serial No., Identifying marks, Condition, and Value if known) |
|---|---|---|---|
| | | | |

| | |
|---|---|
| NAME AND SIGNATURE OF WITNESS (IF AVAILABLE) | NAME AND SIGNATURE OF RECEIVING PERSON |

**Chain of Custody Continued on Next Page**

| CHAIN OF CUSTODY | | | | |
|---|---|---|---|---|
| **ITEM** | **DATE & TIME** | **RELEASED BY** | **RECEIVED BY** | **PURPOSE** |
| | | NAME | NAME | |
| | | ORGANIZATION | ORGANIZATION | |
| | | SIGNATURE | SIGNATURE | |
| | | NAME | NAME | |
| | | ORGANIZATION | ORGANIZATION | |
| | | SIGNATURE | SIGNATURE | |
| | | NAME | NAME | |
| | | ORGANIZATION | ORGANIZATION | |
| | | SIGNATURE | SIGNATURE | |

REMARKS

FINAL DISPOSAL ACTION

FINAL DISPOSAL AUTHORITY

_____ _____ _____

NAME (TYPED OR PRINTED) ORGANIZATION

PERSON(S) RECEIVING ITEMS/WITNESSING DESTRUCTION

NAME ORGANIZATION SIGNATURE

1. _____ _____ _____

2. _____ _____ _____

3. _____ _____ _____

4. _____ _____ _____

CONTINUED IN REMARKS IF NECESSARY

INDICATE IN DISPOSAL ACTION COLUMN (ON FRONT) BY NUMBER AND LETTER CODE PERSON(S) RECEIVING OR WITNESSING ACTION AND TYPE OF ACTION.

RETURNED TO INDIVIDUAL OWNER (I), PERMANENT INVESTIGATION ARCHIVE (P), DESTROYED (D), OTHER METHOD (M). (EXPLAIN IN REMARKS.)

# Appendix H. Corrective Action Plan Example and Template



**Corrective Actions:** Actions Proposed to mitigate the Hazard or Close Call included in Attachment A constitute the formal response to the recommendations included in mishap report for the Insert name of incident here Mishap on March 20, 2009.

The organizational focal point for the inter-center coordination and status of these actions is:

NAME: Insert Name

Organization: Insert Organization

Phone #: (650) 604-1111

Report recommendations and their associated findings are contained in Attachment A.

**Amendments:** Amendments and their approval signatures to the approved CAP are contained in Attachment B (contact code QH Safety Specialist for the Amendment form).

The audit POC is:

Organization: System Safety and Mission Assurance Division

Phone #: (650) 604-1070

**Introduction:** This document addresses the recommendations made in the associated incident report. As such, it not only defines the organization's response to each item (to include an intent to reject the proposed recommendation), but also gives an estimated completion date and point of contact (POC) for future inquiries where applicable. Secondly, this document records the projected audit dates to be accomplished by the Safety & Mission Assurance Directorate. Finally, this document will serve as a record for the actual accomplishment of corrective actions and as such is a living document until the CAP is complete and fully audited.

**Signatures below indicate the approving authorities authorization.**

Concurrence:

_____ _____

Safety and Mission Assurance Director Date

Approval:

_____ _____

Approval Authority Date
(Associate Director or Center Director)

**Attachment A**



# Corrective Action Matrix

## Insert name of Mishap or Close-Call

**O = Observation CF = Contributing Factor R = Root Cause PC = Proximate Cause**

| NO # | FINDING | ACTION PROPOSED | ORG / POC / EXT / DUE DATE | ACTION TAKEN | COMPLETION DATE |
|---|---|---|---|---|---|
| **R #1** | Inadequate training for the work attempted. | General training in chain saw and tree pruning techniques has been provided for all golf course maintenance personnel by a professional arborist. This task required more experience and training than the employee had. | **Code Z**<br>Jane Doe<br>x12345<br>5/10/2009 | Additional training will be provided to include: Fall Protection and PPE (Note: this column is filled in only after the CAP is submitted, approved and the Action Proposed has been completed) | 4/10/2009 |
| **R #2** | No position descriptions (with identified job hazards) for employees. | Position descriptions exist for all employees, although they do not specifically identify potential job hazards. | **Code Z**<br>John Doe<br>x12345<br>5/10/2009 | Modify existing position descriptions to include job hazards or create a separate (JHA) Job Hazard Analysis for each position. | 5/10/2009 |
| **CF #1** | Absence of policies/ guidelines dictating when the services of a professional arborist should be required. | A policy will be developed and followed to determine when tree care can be performed by maintenance personnel and when the services of a professional arborist are required. | **Code Z**<br>John Doe<br>x38026<br>12/312009 | Create and distribute policy to all affected employees. Provide and document training to all affected employees on new policy. | 12/31/2009 |

Attachment A

# Corrective Action Matrix

**O = Observation  CF = Contributing Factor  R = Root Cause  PC = Proximate Cause**

| NO # | FINDING | ACTION PROPOSED | ORG / POC / EXT / DUE DATE | ACTION TAKEN | COMPLETION DATE |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |
| | | | | | |

# Appendix I. Project Incident Response Primer Example and Template

## 1.0 Incident Response Primer Introduction

The purpose of this document is to supplement the Ames Mishap and Close Call Reporting and Investigating/Contingency Plan (APR 8715.1, Chapter 4). It provides information specific to the project for assuring that project personnel are aware of their specific responsibilities for responding to an incident and so that Emergency Responders and Interim Response Team members who report to an incident can be informed about the hazards associated with the area following an incident so that appropriate safety measures can be taken.

## 1.1 Witness to or Informed of an Incident

If witness to what appears to be a NASA incident:

a. Quickly refer to the ARC Safety Incident Reporting bulletin and implement its instructions.
*Note: the following information can be very useful to those whom you contact:*

- Incident Category (Injury/Damage/Both):
- Date of Incident:
- Time of Incident:
- Location of Incident:
- Incident Description:
- Number of Injuries/Illnesses:
- Injury/Illness Referred to AHU (yes/no)?
- Incident Containment Status:

b. Contact key personnel on the project to provide information and status using the contact list below.

**Contact List**

| Function/Responsibility | Last Name | First Name | Org | Phone Numbers | E-Mail |
|---|---|---|---|---|---|
| Project Manager | | | | | |
| System Engineer | | | | | |

## 1.2 Orderly Shutdown of Operations

Take action to limit further property damage or personnel injury. If imminent danger requires doing so, promptly perform emergency shutdown procedures. Otherwise keep everything in its current state to preserve evidence and assist the Emergency Responders upon arrival (if applicable).

## 1.3 Interacting with the Emergency Responders and the Interim Response Team

Be prepared to provide information to Emergency Responders and the Interim Response Team (IRT).

Provide the Hazardous Components & Devices List and the MSDS Matrix to the Emergency Responders and the IRT. Also be prepared to provide them with information as required and to possibly sign material or equipment over them to be impounded until investigated for involvement (cause) in the incident.

## Hazardous Components and Devices

The intent of this section is to provide a list of the hazards that are present prior to and as a result of an incident occurring. A mishap site can be a dynamic situation so it is important to have good situational awareness. To aid with situational awareness, a list of hazardous materials, devices and guidance for emergency responders are described in the table below entitled, “Hazardous Components & Devices and Guidance for Responders”.

### Hazardous Components & Devices List

| Item | Hazard | Special Procedure for Emergency Responders |
|---|---|---|
| Name of Component/Device:<br>MSDS: <Name or N/A><br>Hazard Report #: <HR-XX or N/A>;<br>Location: <In facility or on/in hardware>;<br>Associated Drawing: <Figure X-Y-Z or N/A> | <The way in which this component or device can cause harm to people or property> | <Recommended PPE, special handling, warnings, or equipment that should passed onto Emergency Responders so that they don’t make things worse for themselves or the situation> |
| Name of Component/Device:<br>MSDS: <Name or N/A><br>Hazard Report #: <HR-XX or N/A>;<br>Location: <In facility or on/in hardware>;<br>Associated Drawing: <Figure X-Y-Z or N/A> | “ | “ |
| Name of Component/Device:<br>MSDS: <Name or N/A><br>Hazard Report #: <HR-XX or N/A>;<br>Location: <In facility or on/in hardware>;<br>Associated Drawing: <Figure X-Y-Z or N/A> | “ | “ |

## Material Safety Data Sheet (MSDS) Matrix

| Name of Hazardous Commodity (HC) | Location of HC | Quantity of HC (or quantity range) | Location of HC Material Safety Data Sheet (MSDS) |
|---|---|---|---|
| | | | |
| | | | |
| | | | |